PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
ESCUELA DE INGENIERÍA
DEPARTAMENTO DE INGENIERÍA ELÉCTRICA
IEE2463 SISTEMA ELECTRÓNICOS PROGRAMABLES

Laboratorio 01

ZYBO-Z7 Initialization

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1. Laboratory Goals

After this laboratory, the student should learn:

- To explore basic configuration and hardware of ZYBO Z7 board.

- To introduce the basic functionalities of Vivado Software.

- To create a new project associated to the Zybo Z7 board, including a new source in VHDL.

- To study the basic structure of a VHDL code.

- To include a constrain file and link it to a user VHDL code.

- To enable input switches, buttons and output LEDs, link them to the VHDL user code.

2. Previous Requirements

These requirements are mandatory to perform the laboratory. Not accomplishing them count as missing the laboratory.

- You must have previously installed vitis/vivado version 2020.1.

- You must read the ZYbo Z7 Board Reference.

Note: **Version of the software 2020.1 is mandatory**. This is important to avoid compatibility problems.

3. Laboratory Activities

- Create a new Vivado project associated to ZyboZ7. If you do not find the board within vivado menu, please download the file here, and unzip them in the following directory within the file where you installed vitis:...\Xilinx\Vivado\2015.1\data\boards\. Restart vivado after unzipping the files.

- Include a new source into the vivado project.

- Include constrains into the vivado project. Download the file *Zybo-z7-Master.xsa* from here.

- Edit constrains and create a logic to command the four LEDS from ZYBO-Z7 board using its four switches.

4. Complementary Homework

To fulfill this homework is mandatory, but not evaluated.

- Improve your VHDL code to generate a routine which includes the use of the four buttons to control the four LEDS of the Zybo Z7 board.

- Include a clock to control a timer (programmed by yourself) in your VHDL code. For this you need to enable the clock from the constrains. Use this clock to control the blinking rate of the four LEDs as you wish.